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Question Explain the general characteristic of Dilemma. Discuss the methods used for avoiding dilemma.

The dilemma consist of three propositions of which two constitute premises and third one is conclusion. The premises do not have any specific order. But the composition is fixed. One of the premises is a conjunction of two hypothetical proposition and the other one is disjunctive. The conclusion is either disjunctive or simple. Further hypothetical proposition consists of two types or parts ~~at~~ antecedent and consequent. Since the dilemma consist of two hypothetical propositions conjoined by the word and it is possible that two propositions are found in place of antecedents and two propositions are found in place of consequents. But it is not necessary that it should be so. It is likely that both propositions have a common consequent or common antecedent. If such consequent or antecedent becomes conclusion, then, conclusion is a simple proposition.

The dilemma in the strict sense of the word validity, is neither valid nor invalid. This is so because in this particular pattern there is no way of fixing the truth value of the premises. The dilemma neither contribute to the growth of knowledge nor does it help in testing what is in need of testing. Its significance is only to restricted to rhetoric.

The use of dilemma is an example of misuse or abuse of logic. Such a situation arises when a person, who is ignorant of logic, is confronted by an unscrupulous logician. It is most unlikely that the dilemma was ever seriously considered by any ~~logic~~ professional logician, if then mean that dilemma has only negative significance, i.e. know how not to argue. There are two kind of dilemma.

① Constructive -

(i) Complex Constructive - The antecedents and consequents vary. In second premise the antecedents are affirmed disjunctively and in the conclusion the consequents are affirmed in similar fashion.

$$P_1: (P \supset Q) \wedge (R \supset S)$$

$$P_2: P \vee R$$

$$Q: \therefore Q \vee S$$

(ii) Simple constructive dilemma have both hypothetical propositions have common consequents, though antecedents differ. These antecedents are affirmed disjunctively in second premise and consequent is affirmed in the conclusion. Since there is only one consequent the conclusion is simple proposition.

$$P_1: P \supset Q \wedge R \supset Q$$

$$P_2: P \vee R$$

$$Q: \therefore Q$$



## 2) Destructive Dilemma

i) Simple destructive dilemma, in this type the conclusion is a simple proposition but negative. The second premise has structure similar to that of P2 of CDD (Complex destructive dilemma). The form as follows.

$$P_1: (P \supset q) \wedge (P \supset r)$$

$$P_2: \neg q \vee \neg r$$

$$\hline q: \therefore \neg P$$

(ii) Complex destructive dilemma, it differs in the disjunctive proposition in premise and conclusion negate disjunctively that components of respective propositions. However structure remain same. The form as follows.

$$P_1: (P \supset q) \wedge (r \supset s)$$

$$P_2: \neg q \vee \neg s$$

$$\hline q: \therefore \neg P \vee \neg r$$

Use of dilemma is restricted in some situation, when neither unconditional affirmation of antecedent nor unconditional denial of consequent is possible, logicians may use the dilemma. It indicates ignorance, when we face dilemma we only try to avoid but not negate. There are three methods to avoid the dilemma.

1) Escaping between the horns of dilemma: Two consequents ~~mentioned~~ may be incomplete. If it is possible to show that they are incomplete, we can avoid facing dilemma. This is what escaping between the horns of dilemma.

2) Taking the dilemma by horns: In this method of avoiding dilemma, attempt are made to contradict the hypothetical proposition, which are conjoined. A hypothetical proposition is contradicted when antecedent is missing.

3) Rebuttal of dilemma appears to be its contradiction. But in reality, it is not. In all these cases, the dilemma becomes a potent weapon to mislead the opponent in debate.

Using above these three methods, we can avoid the dilemma.

Question - Why certain fallacies are called fallacies of ambiguity? Explain different types of fallacies of ambiguity with examples.

Argument are either valid or invalid. All valid arguments are good and invalid arguments are bad. A bad argument is also fallacious. Therefore in strict sense of the term, whatever causes an invalid argument also cause a fallacy. There are two ways in which an argument becomes fallacious; violation of any rule of inference result in fallacy. Secondly in terms of truth-value of propositions, fallacy can be caused deducing false conclusion from true premise or premises.

Fallacies are many because there are many ways in which we may go wrong, while arguing we make mistakes sometimes consciously and sometimes inadvertently. There several fallacies are classified as follow, Macmillan and formal, informal, inductive and philosophical. First two types are deductive in nature and they are fallacious in the strict sense of the word. On the other hand inductive fallacies can be regarded so only in a loose sense.

Fallacy can also result due to ambiguity in language. There are sixteen such fallacies. Out of sixteen five types of fallacies are ambiguity.



1) Petition Principii - In philosophical study this fallacy is very common. It is committed when in our attempt to prove we assume what has to be proved. It means that something is proved on the basis of itself.

2) Accident - Fallacy of accident has two forms: direct fallacy and its converse. In both the cases, fallacy results due to inappropriate use of generalisation. So in order to distinguish former from the latter, the former can be qualified as direct accident. These fallacies are committed when the difference between normal and special circumstances is ignored.

1) Fallacy of equivocation - it happens due to ambiguous word. One word with multiple meanings.

For ex.

© This is a fine country to live in.

Here fine could be the good or also punishment.

© Ram is good., Ram is a teacher.

This sentence make so many meanings. Ram must be a good teacher or a good human or something else good. Hence fallacy of ~~equivocation~~ equivocation arises.

2) Fallacy of Amphiboly - it arise when the manner in which the word are combined and the hidden meaning which that combination suggests. is simple and one sentence with multiple meanings.

e.g. children alone are not permitted to see this movie.

This sentence makes multiple meanings. Either children are not allowed to watch this movies or they are allowed but with other children or parents or teachers.

3) Fallacy of Accent - it happens when premise emphasises one aspect while the conclusion emphasises another aspect.

e.g. Love their neighbour.

In this premise it is said that love your neighbour but the conclusion of the premise is love neighbours.

4) Fallacy of Composition - first fallacy consist in proceeding from parts to whole whereas the second consist in proceeding from whole to parts. Generally these fallacies are committed when the attributes are under sending.

e.g. Every man desire his own happiness.

this means all men desire the happiness of all.

5) Fallacy of Division - Composition and division are reciprocal fallacies.

e.g. NaCl is not poison. (Attribute of parts)

Salt is not poison (Attribute of whole).

It is obvious that fallacies of ambiguity are due to wrong interpretation or understanding.



Question 3 Describe Modus Ponens and Modus Tollens with an example.

A To understand the logical constructions, we have two consistent logical argument constructions: Modus Ponens and Modus Tollens.

Modus Ponens - if  $A$  is true then  $B$  is true.  $A$  is true. Therefore  $B$  is true.

if you know  $P \rightarrow Q$ , you may write down  $Q$ .

Proof - 1  $P$  premise

2  $P \rightarrow Q$  premise

3  $Q$  Modus Ponens (1,2)

Modus Tollens - if  $A$  is true then  $B$  is true.  $A$  is not true. Therefore,  $B$  is not true.

if you know  $\neg Q$  and  $P \rightarrow Q$ , you may write down  $\neg P$ .

Proof - 1  $\neg Q$  premise

2  $P \rightarrow Q$  premise

3  $\neg P$  Modus tollens (1,2)

Example -  $P$  and  $Q$  can be anything they can even be totally made up words. ~~not~~  
~~let the language be~~

- if it is a car then it has wheels. it is a car. Therefore it has wheels.

- if it is a car (Modus Ponens - CORRECT)

- if it is a ~~car~~ then it has wheels. It ~~does~~ not have wheels. Therefore, it is not a car. (Modus Tollens - CORRECT)

- if it is a car, then it has wheels. It has wheels, therefore it is a car.  
(Affirming of Consequent - INCORRECT)

Question 3

D

How do you relate the major, minor and middle term in a syllogism?  
A categorical syllogism is a deductive argument consisting of three categorical propositions (two premises and a conclusion); collectively, these three propositions feature exactly three classes each of three classes occurs in exactly two of the propositions. Each of the three classes/terms has a special designation. The so-called major term is the term that appears in predicate position in the conclusion.

e.g. All chipmunks are Republicans

Some Republicans are golfers.

Therefore some chipmunks are golfers.

Here in above example there are three propositions (chipmunks, golfers, and Republicans) and each of the three classes occurs in exactly two of the propositions.

The minor term is the term appears in subject position in the conclusion in above example "chipmunks" is minor term.

The major term is the term that appears in predicate position in the conclusion. in this example "golfers" is the major term.

The middle term is ~~the other one~~ the one that appears in each of the premises. in above example "Republicans" is the middle term.



B

Explain Figure and Mood.

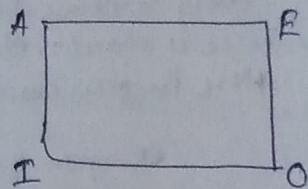
**Figure** — It is a syllogism is determine by the position of middle term. we have said that the middle term appears both in the major and in the minor premises. therefore its possible positions in premises result in four different configurations. Below is the list schematically, using these conventions: let S stand for the minor term, P stand for the major term and M stand for the middle term. Here the four figures of it.

(i) $\frac{MP}{SM}$	(ii) $\frac{PM}{SM}$	(iii) $\frac{MP}{MS}$	(iv) $\frac{PM}{MS}$
$\frac{SP}{SP}$	$\frac{SP}{SP}$	$\frac{SP}{SP}$	$\frac{SP}{SP}$

For all four figures, the subject and predicate of the conclusion remains the same, this is because by definition the minor term (S) is the subject of conclusion and the major term (P) its predicate.

**Mood** — The mood of a syllogism is determine by the types of categorical propositions contained in the argument, and the order in which they occur. To determine the mood put the argument into standard form and then simply list the types of categorical A, I, O featured in the order they occur.

Suppose only O proposition comprises of an argument, then the mood of argument is said to be OOO. Similarly a syllogistic argument with a mood of OAO has an O proposition as its major premise, an A proposition as its minor premise and another O proposition as its conclusion. And EIO has an E as its major premise and an I as the minor premise and an O as the conclusion.



4c Distinguish between deduction and induction.

**Deduction** — An argument whose premises are claimed to provide conclusive evidence for the truth of its conclusion, if its premises are true.

e.g. All men are mortal.  
Socrates is a man.  
Therefore, Socrates is mortal.

**Induction** — An argument that establishes the truth of its conclusion as probable or probably true, if its premises are true.

Inductive arguments can range in probability from very low to very high but always less than 100%. Argument are often said to be empirical because they depend on observations or experience about the world.

4f Differentiate proposition from sentence.

Proposition are stated using sentences. However, all sentences are not propositions. Let's look a few example of sentences.

1. Snakes are poisonous.
2. How old are you?
3. Vote for me.

~~Statement 1 is true or false, second~~

Statement 1 is assertion and we can say these statement are true or false. Second statement is a question so such statement also can't be proposition.



Third statement is an appeal, this is not evocative statement as not propositions.

The difference between proposition and sentence are.

1. Proposition must be meaningful sentences.
2. Proposition must ~~be~~ have a subject, a predicate and a word joining the two, a sentence need not.
3. All propositions are either true or false, but sentences may or may not be.
4. Propositions are units of logic, sentences are units of Grammar.

4G

Universal generalization relates one ~~type~~ type of thing to another type of thing. There may be lots or just one, or none at all, of each type of thing. Universal means that the statement gives a rule that allows not even one exception.

Universal generalization constructed with the quantifiers "all", "only" or "no". Every universal generalization can be written in this form.

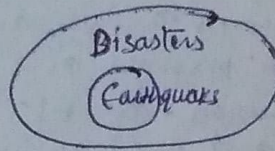
Quantifier A's are B's (Here A and B are plural nouns)

e.g. All disasters are earthquakes.

Every sentence has two parts subject and predicate. The subject is what the sentence is about. The predicate is what the sentence says about the subject.

Here in given example disasters is subject and earthquakes is predicate.

Diagram of generalisation.



Question 5

D

Middle term - The middle term is the class term and premises in categorical Syllogism. Middle term ~~can be~~ appears in each of the premises in between the major and minor terms and also appears both in minor and major terms. The position of the middle term determines the figure to which Syllogism belongs.

- e.g.
- E: No women named Deepthi are outer island Yapese women.
  - A: All outer island Yapese women are weavers of the baskets.
  - O: Some weavers of the baskets are not women named Deepthi.

In this example minor term that is subject is "weaver of the baskets", major term the predicate is "women named Deepthi" and middle term is "outer island Yapese women".

5F

Hasty Generalization is a fallacy that occurs when you jump to a conclusion about something before having sufficient information about it. In other words a judgement which is made based on very small and limited ~~sample~~ sample of data. Hence when we move carelessly or too quickly from a particular case to making sweeping generalization, we commit the fallacy of hasty generalization.

5G

Connotation of term - It is the correlation of attribute and object when applied to the term, it has the same meaning as intension or content, applied to the concept itself. A connotative term is one which applied to an object is such as to imply in its signification some attribute belonging to the object.



Most people are very imperfectly aware of the connotation of the words they use, and are guided in using them merely by the custom of the language.

5  
B

**Invalidity** - An argument that is not valid. we can test for invalidity by assuming that all the premises are true and seeing whether it is possible for the conclusion to be false. If this is possible, the argument is invalid. This apply only on arguments & not on statements. Statement can be true or false.

If you consider the definitions of validity and invalidity carefully; you'll note that valid argument have the following important properties. Valid argument preserve truth, if all your premises are true and you make a valid argument from them.

5  
C

**Multi value logics** - it is a logical calculi in which there are more than two possible truth values. Traditionally, logical calculi are bivalent, that is, there are only two possible truth values for any proposition, true and false. But bivalence is only one possible range of truth value that may be assigned and other logical systems have been developed with variations on bivalence, or with more than two possible truth-value assignment.

This was originated by Łukasiewicz and Post in twenties. The idea underlying these studies is to extend the scope of classical logic by considering a set of truth-values larger than the usual 0 or 1's. The new set may be finite or infinite and in most cases, it will bear some order structure, making it poset or a lattice, or a chain, with a top element complete truth and a bottom one complete falsity.